



## NEWS RELEASE from the EU drugs agency in Lisbon

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### 26 JUNE: INTERNATIONAL DAY AGAINST DRUG ABUSE AND ILLICIT TRAFFICKING **Advances in brain research throw light on addiction, says EU drugs agency**

(24.6.2009, LISBON) How people become addicted to drugs and why they may find it difficult to stop are issues explored by the **EU drugs agency (EMCDDA)** today in new material released ahead of **International day against drug abuse and illicit trafficking** (26 June). The information package, dedicated to emerging research in neurobiology, examines the social, ethical and policy implications of scientific developments in this field <sup>(1)</sup>.

How addiction is understood by society plays a pivotal role in shaping drug laws, policies and interventions. Drug addiction can be viewed as a disorder whereby the individual loses control over his or her consumption. Addicts may wish to quit, but find it hard to do so, despite often experiencing negative effects. Advances in brain research now provide a better understanding of how dependence develops, and offer the potential for new prevention strategies and psychological and pharmacological treatments. These issues are addressed today in a new **EMCDDA** monograph ***Addiction neurobiology: ethical and social implications***.

**EMCDDA Director Wolfgang Götz** says: 'Across Europe, we pay a heavy price for the addiction of many of our citizens to illicit drugs, alcohol and tobacco. Although improvements have been made over the last decade in treating some forms of drug use, overall the therapeutic arsenal in this area remains insufficient. Developments in neuroscience now provide us with a growing understanding of the biological mechanisms underlying dependence and raise the exciting hope of new opportunities for prevention and treatment'.

#### **State-of-the-art research and technology**

Also released today is an **EMCDDA** briefing paper for policymakers ***Neurobiological research on drugs: ethical and policy implications***. According to the paper, most neurobiological research to date has focused on the fact that addictive drugs increase the release of dopamine, a neurotransmitter in the brain which helps individuals memorise signals of pleasure or 'reward'. New findings suggest that serotonin and noradrenaline (which work as a couple controlling impulsivity and asserting vigilance) are also involved in the addiction process. The briefing describes how chronic drug use disrupts this coupling, making a person more prone to cravings and less capable of controlling consumption.

New discoveries in neurobiology have the potential to transform some of our responses to drug problems and open up the possibility for a wider range of technologies to treat, or even prevent, addiction. Therapies under development include: vaccines that bind to the target drug (e.g. cocaine) in the bloodstream, preventing it from reaching the brain; and slow-release drug implants, allowing a gradual reduction in dose. Genetic testing is also helping scientists identify genes that may make a person susceptible to addiction. And the latest neuroimaging techniques can now look inside the brain and shed light on addictive processes.

#### **Optimism tempered by ethical concerns**

But while research in neuroscience may hold the promise of new treatment possibilities, many of the approaches reviewed today remain untested and raise important ethical concerns.

'Along with the considerable potential for good comes a potential for significant harm', states the monograph, warning against the misuse of these new approaches (e.g. coercion of addicts into highly invasive or possibly damaging treatments; abuses of privacy). One of the approaches singled out as unlikely to prove ethically acceptable is neurosurgery. Also raising ethical concerns, but less invasive than neurosurgery, is deep brain stimulation, where electrical stimulating electrodes are inserted into the parts of the brain involved in addiction.

**EMCDDA Chairman Marcel Reimen** says: 'There is a pressing need to explore the ethical and policy implications of addiction neuroscience research to ensure that developments are taken forward in ways that adequately safeguard human rights and protect the ethical values of consent, liberty, equality and privacy'.

He adds that: 'Any potential new approaches will require rigorous evaluation for safety and efficacy before being introduced into routine practice'.

### 'No magic bullet cure' — need to support further research

'Although important new prevention and treatment approaches are likely to emerge from this work, they are no magic bullet cure for the complex problems that drug use causes for the individual and society', says **Director Wolfgang Götz**.

'There is a need to continue supporting studies in this area, whilst reviewing how European research can be encouraged and best organised', adds **Götz**. He recalls the recent **EMCDDA** conference — 'Identifying Europe's information needs for effective drug policy' — which stressed the importance of new scientific findings and methodologies which increase our understanding of the mechanisms behind drug use and addiction <sup>(2)</sup>.

Concluding **Götz** says: 'A major challenge for drugs policy will be to develop approaches that benefit from the advances offered by an understanding of the neurobiological basis of addiction but that are also sensitive to the complex nature of drug problems. It is important to recognise that drug use and addiction are affected by individual and social choices as well as by underlying biological processes'.

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#### Notes:

<sup>(1)</sup> Today's materials are dedicated to neurobiology, the study of cells of the nervous system and the organisation of these into functional circuits that process information and mediate behaviour. The publications are:

- *Addiction neurobiology: ethical and social implications*, EMCDDA monographs No 9, EMCDDA, 2009. Available in English at [www.emcdda.europa.eu/publications/monographs](http://www.emcdda.europa.eu/publications/monographs)
- 'Neurobiological research on drugs: ethical and policy implications', *Drugs in focus* No 19, EMCDDA, 2009. (Briefing note for policymakers). Available in 25 languages at [www.emcdda.europa.eu/publications/drugs-in-focus](http://www.emcdda.europa.eu/publications/drugs-in-focus)
- The EMCDDA also offers a thematic webpage on neuroscience at: [www.emcdda.europa.eu/themes/neuroscience](http://www.emcdda.europa.eu/themes/neuroscience)

<sup>(2)</sup> The EMCDDA conference, celebrating 15 years of drug monitoring in Europe, dedicated one of its sessions ('Horizons') to new scientific findings and methodologies which increase our understanding of the mechanisms behind drug use and addiction. For more, see [www.emcdda.europa.eu/events/2009/conference](http://www.emcdda.europa.eu/events/2009/conference)

On 26 June, the European Commission will be launching **European Action on Drugs (EAD)**. With this new initiative, the Commission encourages actors such as government bodies, public services, voluntary organisations, companies and individuals to make concrete commitments and to work together to raise awareness and interest, particularly among young people, about drugs and the dangers of drug abuse — [www.action-drugs.eu](http://www.action-drugs.eu)